

Atty. Dkt. No. 025572-0102

Amendments to th Specificati n

Please amend the specification as follows:

On page 4, please replace the paragraph beginning at line 7 with the following revised paragraph:

D1
FIG. 7 is an illustrative representation of the cancellation of light due to constructive interference of wavefronts; ~~and~~

On page 4, please replace the paragraph beginning at line 9 with the following revised paragraph:

D2
FIG. 8 is an illustrative representation of a cross section of an optical processing device; and

On page 4 after line 10, please add the following new paragraph:

D3
--FIG. 9 is an illustrative representation of the optical NOT gate of FIG. 2 formed on a substrate as depicted in FIG. 8.--

On page 5, please replace the paragraph beginning at line 3 with the following revised paragraph:

D4
As depicted in FIG. 2 and FIG. 9, light may be provided to input 20 simultaneous with the bias light provided to bias input 15. Light from bias input 15 and input 20 are received in interference region 25. Light waves in interference region 25 destructively interfere, in particular, along line 35 which is substantially aligned with output 30. Therefore, output 30 provides a substantially dark output, in other words, the energy of the light coming from interference region 25 is low, i.e., below a predetermined threshold.

Atty. Dkt. No. 025572-0102

On pages 10-11, please replace the paragraph beginning at lin 25 with the following revised paragraph:

OS
Therefore, it is possible to construct an optical processing device having a plurality of light sources, such as lasers 600. Further, a plurality of optical gates, forming an optical processor 700, may be formed on a substrate 705, as depicted in FIG. 8 and FIG. 9. Substrate 705 (e.g., silicon, gallium arsenide, etc.) may be overlaid with a second material 710 (e.g., doped silicon, doped gallium arsenide, other nondoped materials, etc.) forming a plurality of gates patterned in second material 710. Further, the device may include a plurality of laser light sources 720 having a first layer 730 (e.g., semiconductor) overlaid with a second layer 740 (e.g., semiconductor) and having a doped junction 750 therebetween. In an exemplary embodiment, optical processor 700 may include a non-translucent layer 760 overlaying substrate 705 and patterned gate structures 710 and semiconductor laser 720, and any other devices formed on substrate 705.

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Amendments to the Drawings

Please add the attached 1 sheet (Fig. 9) of informal drawings.